Hiroshi INOUE*: ***Scaphophyllum*, a new genus of the Jungermanniaceae**

井上 浩*: ツボミゴケ科の新属 *Scaphophyllum*

In 1934, Horikawa described *Anastrophyllum speciosum* from Formosa, which has been known only from the type specimen. Schuster (1961), in connection with *Hattoria*, discussed this species briefly and proposed *Anastrophyllum* subg. Aschizophyllum for it basing on Horikawa's original description. Kitagawa (1963) studied the type specimen and tentatively transferred this species to *Jungermannia* (s. lat.). I was able to study some living plants of *Anastrophyllum speciosum* collected on Mt. Ta-yuan of Formosa by Mr. C. C. Chang of the National Taiwan University. The living plants are pale yellow-green, rarely deep green and have no reddish or purple pigmentation at all. The stem anatomy shows a very different facies from that of *Anastrophyllum*, having no differentiated cortex. As Kitagawa (1963) considered, it is obviously not of the member of *Anastrophyllum* and even of the Lophoziaceae. Mr. Chang's collection did not have any sexual organs, but I was able to study a well developed perianth in the type specimen in hb HIRO. My studies on living plants and the type specimen resulted in the proposal of the new genus in the Jungermanniaceae for this species.

Scaphophyllum Inoue, gen. nov. (Jungermanniaceae).

Anastrophyllum Spruce subg. Aschizophyllum Schust., Rev. Bryol. Lichenol. **30**: 71, 1961; nom. nud.!

Planta magna, robusta, pallide viridis vel falvo-virens. Caulis simplex, vel parum ramosus, in section transversali sine cellulis corticalibus, parenchymaticus. Folia caulina imbricata, amplexicualia, valde canaliculato-concava, parum sinuatim vel subtransverse inserta, integerrima. Amphigastria caulina nulla. Radiculae numerosae. Folia floralia caulinis simillima, intergerrima, amphigastria floralia nulla. Peryginium nullum. Perianthia terminalia, sine innovationibus, pyriformia, superne plicata, ore constricto, crenulato vel ciliato-dentato. Gemmae nullae. Androecia ignota.

Type: *Anastrophyllum speciosum* Horik.

Scaphophyllum speciosum (Horik.) Inoue, comb. nov.

Anastrophyllum speciosum Horik., J. Sci. Hiroshima Univ. ser. B, div. 2, **2**:

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* National Science Museum, Tokyo. 国立科学博物館.

147, 1934.—*Jungermannia speciosa* (Horik.) Kitagawa, Hikobia **3** (3): 175, 1963.

Plants pale yellow-green or green, 4–6 cm long and about 7 mm wide with

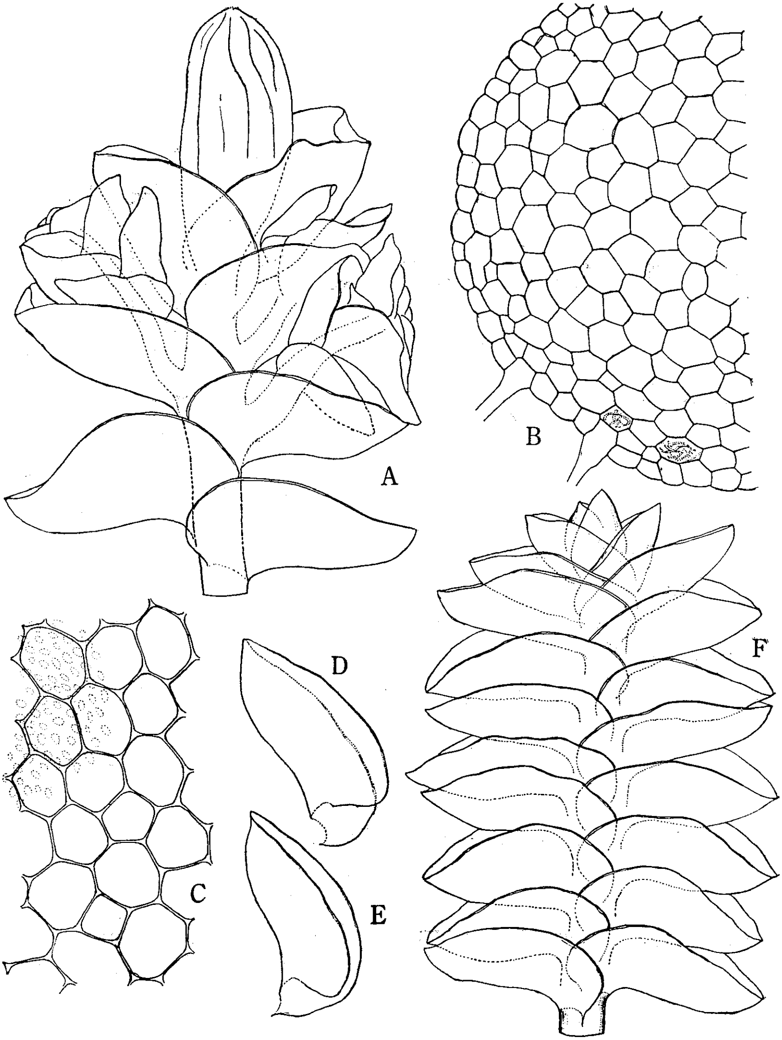

Fig. 1. *Scaphophyllum speciosum* (Horik.) Inoue. A. Part of plant, with female inflorescence, dorsal view, ×8. B. Part of stem cross-section, ×128. C. Cells from the middle of leaf, ×240. D, E. Leaves, ×8. F. Part of sterile plant, dorsal view, ×8. Fig. A based on type, others on Mr. Chang's collection.

leaves, among mosses on wet rocks or soil, erectly ascending. Stem pale yellow-green or pale brownish, mostly simple, rarely branched, branches of the terminal Frullania-type, arising from near the axile of leaf, in cross section somewhat dorsiventrally compressed, approximately 20 cells thick and 27 cells wide, cell walls extremely thin and whitish except the outer 2–3 cell-layers where the cell walls are pale brownish or pale yellowish and slightly thickened, mychorrizal cells few. Leaves usually closely imbricate, sometimes contiguous to distant, nearly horizontally spreading, strongly canaliculate-concave, the margin entire throughout, narrowly reflexed, the insertion line weakly sinuate or sometimes subtransversal, dorsally slightly decurrent. Underleaves totally absent. Cells in the middle of leaves 27–32×29–35 μ, in the base elongated, 20–40×70–105 μ, walls thin throughout, trigones small, triangular, cuticule distinctly verrucose. Oil-bodies 3–5–(7) per cell in the leaf-middle and -apex, 4–7–(12) per cell in the leaf-base, spherical and 3.5–6–(7) μ (mostly in the cells of the leaf-apex to -middle) or fusiform and 3–4×5–10 μ (mostly in the cells of leaf-base), containing numerous, minute granules, the surface smooth. Rhizoids numerous, colorless, throughout the postical side of stem. Male plants unknown. Female inflorescences terminal, without innovation, bracts similar to the leaves in form, usually a little larger, bracteoles totally absent. Perianth pyriform, weakly plicate at the upper half, the mouth constricted, forming a small beak, cilium-like outgrowthes of cells present on outer and inner sides around the mouth, cells of perianth walls same as those of the leaves, but around the beak they have distinctly longer axis (2–3.5 times as long as wide). Sporophytes unknown.

Type: Formosa; Mt. Taiheizan, leg. Horikawa no. 11478 (HIRO).

Specimen exam. Formosa; Mt. Ta-yuan, Ilan Co., alt. 2500 m., leg. C.C. Chang s.n., March 4, 1966 (TNS).

Schuster (1961) apparently did not study the specimen of *Anastrophyllum speciosum.* He did not give the description of his subg. Aschizophyllum, and, therefore, I would like to propose a new generic name for this species.

Scaphophyllum should be included in the Jungermanniaceae by the combinations of characteristics of (1) the pyriform perianth with weakly plicate upper half, (2) the absence of bracteoles and underleaves, (3) no differentiation of bracts from the leaves in form and marginal dentation, and (4) numerous, scattered rhizoids on the whole surface of postical side of stem. The essential points to put this species out of the Lophoziaceae are (1) no differentiation of bracts from the leaves, and (2) the absence of bracteoles and underleaves.

Kitagawa (1963) noted "It seems unsatisfactory to regard this species as a member of the Jungermanniaceae" by the canaliculate leaves and villous rhizoids. However, these features are very frequent in the Jungermanniaceae as described in the literature (see Amakawa 1959, 1960). Among the Jungermanniaceae, *Scaphophyllum* is closely related to *Jungermannia* subg. Solenostoma in the perianth form. However, the strongly canaliculate-concave leaves with more or less sinuate or subtransversal insertion lines and not differentiated stem anatomy are important to separate these two. It should be noted that some members of subg. Plectocolea have a strong tendency to have more or less similarly concave leaves (for example, *Jungermannia erecta* and *J. flagellata*).

I am much indebted to Mr. C.C. Chang of the National Taiwan University for his kindness in forwarding the living plants, and to Prof. Y. Horikawa and Dr. H. Ando of Hiroshima University for their kind providing facilities for the study of the type specimen. My sincere thanks are also due to Dr. S. Hattori of the Hattori Botanical Laboratory for his advice. Acknowledgment is made of the partial financial support of this investigation through a grant from Japan Society for the Promotion of Science as a part of Japan-U.S. Cooperative Science Program.

Literature Cited

Horikawa, Y. (1934). J. Sci. Hiroshima Univ. ser. B, div. 2, **2**: 101. Amakawa, T. (1959). J. Hattori Bot. Lab. **21**: 248. ——— (1960). Ibid, **22**: 1. Schuster, R.M. (1961). Rev. Bryol. Lichenol. **30**: 55. Kitagawa, N. (1963). Hikobia, **3**(3): 169.

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Anastrophyllum speciosum については基準標本だけしか知られていなかったが，1966年3月，台北大学を訪れた時 Mr. C.C. Chang が採集した本種を生品の状態で調べることができた。残念ながらこの資料には生殖器官がなかったが，広島大学に保存されている基準標本でその花被ならびに雌包葉を調べることができた。その結果，本種は Lophoziaceae のものでなく，Jungermanniaceae のものであり，しかも *Jungermannia* subg. Solenostoma に近い新属とすべきであるとの結論をえたので，**Scaphophyllum**（葉形による名）と名付けて発表した。

Schuster (1961) は堀川教授の原記載と図をもとにして本種を *Anastrophyllum* subg. Aschizophyllum に属させたが，これは明らかに誤りである。又 subg. Aschizophyllum は記載を伴わない裸名であるので，新らしく *Scaphophyllum* とした。北川 (1963) が本種を Lophoziaceae から除外する根拠として挙げた形質は Lophoziaceae と Jungermanniaceae の本質的な差ではなく，又，本種を Jungermanniaceae に含めるのも困難であるとした根拠に挙げた形質は Jungermanniaceae のものにしばしばみられる形質である。